UNITED STATES PATENT AND TRADEMARK OFFICE

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09/901,363	07/09/2001	Robert Hundt	10012768-1	5331

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EXAMINER
RAMPURIA, SATISH

ART UNIT	PAPER NUMBER
2124	4

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

Response to Amendment

1. This action is in response to the amendment received on 08/02/2004.

2. The objection to claim 3 is withdrawn in view of applicant's amendment.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No.

6,665,671 to Coutant et al., hereinafter called Coutant.

Per claim 1:

Coutant discloses:

-   *A computer-implemented method for optimizing an executable program* (col. 4, lines 64-

65 "data load optimizer 140... source program, executable program") *having a plurality of*

functions (col. 4, line 66 "comprising a set of instructions") *and at least one function with*

a first name associated with executable code that implements the function at a first

address (col. 4, lines 43-46 "memory 42... include one or more... programs... comprises...

listing of executable instructions for implementing logical functions") *and at least one*

linkage stub code segment having code that branches to the first address (col. 7, lines 16-

18 "function B 83 within module A 81 references (address) data area DD 95 within module

X 91, the function B 83 first references the linkage table 86 that was created by the linker

program 54") *and a symbolic name by which the function is invoked in the program* (col.

8, lines 66-67 "dynamic loader 120 resolves the symbolic references in the symbol table")

- *identifying branch instructions* (col. 3, lines18-20 "in a function call, a jump/branch

  instruction is used to transfer control from one point in the code to another") having *target*

  addresses that reference the linkage stub code segment (col. 3, lines 24-26 "at load time

  with the actual address once the second load module has been loaded")

- *replacing the target addresses of the branch instructions with the first address* (col. 8,

  lines 26-26 "the data load optimizer 140 then replaces the linkage table load with the no-op

  instruction at step 145" see fig. 7)

Per claim 2:

The rejection of claim 1 is incorporated, and further, Coutant discloses:

- *replacing the target address of the branch instructions with the first address only in*

  functions (col. 8, lines 26-26 "the data load optimizer 140 then replaces the linkage table

  load with the no-op instruction at step 145" see fig. 7) *that are reached during program*

  execution (col. 8, lines 23-24 "if it is determined at step 144 that the global pointer relative

  offset is small enough to be handled")

Claim 15 is the apparatus claim corresponding to method claim 1 and rejected under the same

rational set forth in connection with the rejection of claim 1 above.

Substantially as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coutant, in

view of admitted prior art.

Per claims 3-5:

The rejection of claim 1 is incorporated, and further, Coutant discloses:

- *searching a symbol table for an entry having a symbolic name* (col. 8, lines 1-2 "resolution

of the symbolic references in the symbol table require the definitions for external references

be found") *and reading a linkage stub address* (col. 2, lines 18-19 "optimization system

includes a linkage table that contains at least one unresolved data module") *associated with*

the symbolic name (col. 7, lines 66-67 "dynamic loader 120 resolves the symbolic

references in the symbol table")

- *replacing target addresses of branch instructions having target addresses equal to the*

linkage stub address (col. 8, lines 26-26 "the data load optimizer 140 then replaces the

linkage table load with the no-op instruction at step 145" see fig. 7) with *an address at*

which the code that implements the function is stored (col. 8, lines 16-27 "If it is

determined... reference symbol... same load module... the data load optimizer 140 then

replaces the linkage table load with the no-op instruction at step 145")

Coutant does not explicitly disclose derivative or having underscore in the name.

However, admitted prior art discloses in an analogous computer system with derivative or

having underscore in the name (Applicant's specification, page 2, lines 15-17 "Certain

compilers add underscores to names of external functions referenced in an application program.

For example, some FORTRAN compilers add underscores to function calls in the application

program in order to avoid conflict with FORTRAN "COMMON" blocks").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to incorporate the method of derivative or having underscore in the

name as taught in prior art into the method of optimizing the executable program code as taught

by Coutant. The modification would be obvious because of one of ordinary skill in the art

would be motivated have underscore or derivative of the name at the time of execution to

differentiate the function name as suggested in prior art (Applicant's specification, page 2, lines

17-19).

7. Claims 6, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Coutant in view of US Publication No. 2002/0026633 to Koizumi et al., hereinafter called

Koizumi.

Per claims 6, 7, and 11:

The rejection of claim 1 is incorporated, and further, Coutant does not explicitly disclose

replacing function entry points in the executable program with breakpoints, whereby

breakpointed functions are generated; and upon encountering a breakpoint of a breakpointed

function during program execution, identifying within the breakpointed function branch

instructions that target linkage stub functions.

However, Koizumi discloses in an analogous computer system replacing function entry

points in the executable program with breakpoints, whereby breakpointed functions are

generated (page 17, paragraph 387 "a break-point setting processing" and "Referring to FIG. 41,

the statement ID number in the command is extracted" and "a flag is set which indicates that the

break point has been set at the corresponding statement ID number in the correspondence

table"); and upon encountering a breakpoint of a breakpointed function during program

execution (page 17, paragraph 383 "break point setting command as inputted, a break point

setting processing is executed (step 5127), while for an execution command, execution

processing is performed"), identifying within the breakpointed function branch instructions that

target linkage stub functions (page 17, paragraph 389 "it is checked by consulting the

correspondence table whether the break point is set at the extracted address. Unless the break

point is set, the processing is repeated, starting from the step 5152, while the processing comes to

an end when the break point is set"). Storing of instructions would be inherent if the break point

address is being extracted from the memory.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to incorporate the method of setting break point as taught by Koizumi

into the method of optimizing the executable program code as taught by Coutant. The

modification would be obvious because of one of ordinary skill in the art would be motivated to

set a break point within the code so that the translation of the code is appropriate for the target

machine as suggested by Koizumi (page 2, paragraph 26 "It is therefore... translated into a

machine language... appropriate... target machine... execution...").

8. Claims 8-9 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Coutant, Koizumi in view of admitted prior art.

Per claims 8-10 and 12-14:

The rejection of claims 6, 11 is incorporated respectively, and further, Coutant discloses:

- *searching a symbol table for an entry having a symbolic name* (col. 8, lines 1-2 "resolution

  of the symbolic references in the symbol table require the definitions for external references

  be found") *and reading a linkage stub address* (col. 2, lines 18-19 "optimization system

  includes a linkage table that contains at least one unresolved data module") *associated with

  the symbolic name* (col. 7, lines 66-67 "dynamic loader 120 resolves the symbolic

  references in the symbol table"); and

- *replacing target addresses of branch instructions having target addresses equal to the

  linkage stub address* (col. 8, lines 26-26 "the data load optimizer 140 then replaces the

  linkage table load with the no-op instruction at step 145" see fig. 7) with *an address at

  which the code that implements the function is stored* (col. 8, lines 16-27 "If it is

  determined... reference symbol... same load module... the data load optimizer 140 then

  replaces the linkage table load with the no-op instruction at step 145")

Neither Koizumi nor Coutant explicitly disclose derivative or having underscore in the name.

However, admitted prior art discloses in an analogous computer system with derivative or

having underscore in the name (Applicant's specification, page 2, lines 15-17 "Certain

compilers add underscores to names of external functions referenced in an application program.

For example, some FORTRAN compilers add underscores to function calls in the application

program in order to avoid conflict with FORTRAN "COMMON" blocks").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to incorporate the method of derivative or having underscore in the

name as taught in prior art into the method of optimizing the executable program code as taught

by Coutant. The modification would be obvious because of one of ordinary skill in the art

would be motivated have underscore or derivative of the name at the time of execution to

differentiate the function name as suggested in prior art (Applicant's specification, page 2, lines

17-19).

Response to Arguments

9. Applicant's arguments with respect to claims 1-15 have been considered but they are not

    persuasive.

In the remarks, the applicant has argued that:

-   For claims 1, 2, and 15 cited reference does not teach or suggest optimizing remote

    function calls, identifies the branch instructions in a program, replacing the target

addresses of the branch instructions with the first address. Therefore the limitations of

claims are fail to taught by Coutant.

Examiner's response:

- Coutant clearly discloses the claimed limitations as cited in the previous office action.

  Regarding optimizing remote function calls, this limitation is not cited in claim 1.

  Coutant system does disclose identify branch instruction as jump instruction (see

  previous office action, page 3) and it also discloses replace the instructions (see previous

  office action, page 3) with the direct load instructions in the table as well as address (col.

  7 and 8, lines 58-67 and 1-48).

In the remarks, the applicant has argued that:

- For claims 3-5, office action fails to provide a proper motivation for modifying the

  teaching of Coutant.

Examiner's response:

- Regarding improper motivation, it is noted that the rejection clearly points out where the

  combination of Coutant and admitted prior art teach the claimed features and why it

  would have been obvious to combine their teachings. Applicant only makes general

  allegations and does not point out any errors in the rejection. Rather, in response to

  applicant's arguments against the references individually, one cannot show

  nonobviousness by attacking references individually where the rejections are based on

  combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the

rejection is proper and maintained herein.

In the remarks, the applicant has argued that:

- For claims 6, 7, and 11 the cited reference does not teach or suggest identifying

  instructions within a breakpointed function that target linkage stub functions. Therefore

  limitations are not taught by the combination system of Coutant-Koizumi and fail to

  provide a proper motivation.

Examiner's response:

- Coutant and Koizumi are directed to optimization of code. Coutant discloses optimizing

  remote function calls, identifies the branch instructions in a program, replacing the target

  addresses of the branch instructions with the first address (see previous office action and

  col. 4, lines 64-67). Koizumi discloses identifying instructions within a breakpointed

  function that target linkage stub functions (see previous office action). Regarding

  improper motivation, it is noted that the rejection clearly points out where the

  combination of Coutant and Koizumi teach the claimed features and why it would have

  been obvious to combine their teachings. Applicant only makes general allegations and

  does not point out any errors in the rejection. Rather, in response to applicant's arguments

  against the references individually, one cannot show nonobviousness by attacking

  references individually where the rejections are based on combinations of references. See

  In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800

F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the rejection is proper and

maintained herein.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Satish S. Rampuria
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Art Unit 2124
11/15/2004

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